

--Related Application

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This application is a division of copending U.S. Patent Application Serial No. 09/367,379, filed November 1999.--

In the claims:

Cancel claims 1 - 20 without prejudice, and substitute claims 21 - 32 as follows:

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~~21~~ method of constructing a polymer support frame over which woven wire cloth is to be stretched and secured to form a sifting screen, comprising the steps of locating in a mould tool a reinforcing wire frame assembly comprising two parallel spaced apart arrays of reinforcing wires, closing the mould tool, injecting liquid polymer into the mould tool by injection moulding, so as to wholly encapsulate the wire frame and to form an article having an open central region criss-crossed by intersecting orthogonal ribs bounded on all sides by a rigid flange, in which each of the said ribs includes two parallel spaced part wires of the said wire frame assembly, permitting the polymer to cure, opening the tool, and removing the moulded article.

22. A method according to claim 21, in which the reinforcing wire frame is made by the steps of:

- equally spacing apart cut lengths of wire in a jig to form a first array,
- locating thereover a second equally space array of cut lengths of wire at right angles to the first array,
- resistance welding the wires of the two arrays at all the points of intersection so as to form a first rectilinear matrix,

- similarly positioning two similar arrays of similarly cut length of wire in a jig and resistance welding the points of intersection of intersection of the orthogonal wires so as to form a second, similar rectilinear matrix,
- bending in a press break the protruding lengths of wire on at least two of the four sides of one of the rectilinear matrices, so as to bend each protruding section first in a generally upward sense and then at a point nearer to its end in a downward sense so that the end region of each protruding length extends parallel to the plane containing the matrix, but is displaced therefrom, and
- and thereafter resistance welding the displaced ends of the protruding wires of the said one matrix to the protruding ends of the wires of the other matrix.

23. A method as claimed in claim 21, wherein an inward force is exerted on opposite faces of the fabrication within the mould tool by fingers protruding inwardly from the inside faces of the tool, to externally engage the opposite matrices of the fabrication when the tooling closes.
24. A method of constructing a filter screen comprising the steps of forming a polymer support frame having therein a plurality of similarly sized rectilinear apertures defined by an integral rectilinear matrix of wire reinforced struts of polymer material, in which the upper edge of each strut, and the upper surface of each boundary of the support frame, is ridged, and in which the woven wirecloths are fitted over the ridges, tensioned, and secured in place by heating at least the ridges so as to soften the polymer material therein

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sufficiently to allow the wirecloths to penetrate the crests thereof and upon cooling to remain embedded therein, so as to maintain tension in the wires of the wirecloths after cooling.

25. A method as claimed in claim 24, which also involves the step of differentially tensioning the wires in one wirecloth relative to those in the other, so that different tensions exist in the wires of the two cloths after bonding to the polymer support frame.
26. A method of repairing or refurbishing a filter screen constructed in accordance with claim 24, wherein worn or damaged wirecloth is stripped from the surface of the polymer frame, fresh cloth is placed over the frame and tensioned as appropriate and heat is applied so as to soften the surfaces of the frame over which wirecloth is stretched, so that the latter can penetrate the softened plastics material and become embedded therein, after which the assembly is allowed to cool, the tensioning force is removed, and the wirecloth edges are trimmed back to the surrounding flange of the frame.
27. A method as claimed in claim 26, wherein plastics material is applied to the surface of the frame which is to receive the wirecloth before the latter is fitted thereover, to provide additional plastics material for bonding the wirecloth to the frame.
28. A method as claimed in claim 26, wherein the stripped support frame is inserted in a mould and fresh polymer material is injected into the mould so as to reform on the surfaces of the frame ridges similar to those which existed when the frame was first manufactured, before the wirecloth is applied thereto.

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29. A method as claimed in claim 26, wherein after removing worn or damaged wirecloth from a support frame, plastics sheet similar in size and pattern of openings to the support frame when viewed in plan is placed over the frame which is to be repaired, in alignment therewith, before or after new wirecloth is stretched thereover and before heat and pressure is applied, to provide additional plastics material to bond the new wirecloth to the frame.
30. Apparatus for repairing or refurbishing a filter screen from which worn wirecloth has been stripped comprising a tray into which the stripped frame is inserted, wirecloth stretching means surrounding the tray including attachment means for securing to the edges of a sheet of wirecloth laid over the upper surface of the frame in the tray, tensioning means for exerting tension on the wirecloth in at least two different directions while it is so stretched over the frame, means for heating the frame to soften the uppermost edges of the matrix of struts and periphery of the frame, and means for forcing the wirecloth into the softened material such that after cooling, the wirecloth remains bonded to the polymer frame, and can be trimmed back to the edges of the frame.
31. Apparatus as claimed in claim 30, comprising further attachment means and tensioning means to enable at least a second sheet of wirecloth to be secured over the first for bonding to the frame.

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